Table 15: **Tat**

HXB2 Location	Author Location	Sequence	Immunogen	Species(HLA)	References
Tat(2–11)	( )	EPVDPRLEPW		(B53)	[Addo (2001), Brander & Goulder(2001)]
Tat(2–11)	Tat(2–11 BRU)	EPVDPRLEPW	HIV-1 infection	human(B53)	[Addo (2001)]
• Epitope name: Tat 1. Rev and Tat are expressed early in the virus life cycle and thus may be important targets for CTL against HIV early in infection and for vaccines – therefore CTL responses against Tat and Rev were screened using overlapping peptides • 11/57 (19.3%) HIV-1+ individuals recognized at least 1 Tat peptide, and 21/57 (37%) responded to at least 1 Rev peptide • EPVDPRLEPW ws recognized by four individuals, but only two were B53, thus this epitope can probably be presented by other HLA alleles					
Tat(36–50)	( )	VCFQTKGLGISYGRK		human( )	[Novitsky (2001)]
• This study provides a survey of CTL responses and full length HIV-1 genome sequences from a C subtype infected Botswanan cohort • 17 of 46 patient reacted with Tat immunodominant peptide VCFQTKGLGISYGRK • Most of the CTL responses occurred despite a mismatch between the autologous viral sequence and peptide – complete matches were seen only in 4/19 cases (21%) and the mismatched CTL tended not to respond to the autologous viral peptide indicative of immune escape					
Tat(38–47)	( )	FQTKGLGISY		human(B*1503)	[Novitsky (2001)]
• Epitope name: T38-FY10. This study provides a survey of CTL responses and full length HIV-1 genome sequences from a C subtype infected Botswanan cohort • 17 of 46 patient reacted with Tat immunodominant peptide VCFQTKGLGISYGRK • FQTKGLGISY was the optimal epitope in the peptide VCFQTKGLGISYGRK among B*1503+ individuals					
Tat(49–57)	Tat(49–57)	NOT AN EPITOPE		murine( )	[Kim (1997a)]
• The Tat peptide RKKRRQRRR when conjugated to a protein can cause that protein to be taken up by APCs and presented to CTL • The system was demonstrated by vaccinating mice with an OVA-Tat peptide conjugate and immunizing H-2 K^b mice • The CTL response to the H-2 K^b specific OVA peptide SIINFEKL was stimulated					
Tat(49–57)	Tat(49–57)	RKKRRQRRR	Vaccine	murine(H-2^d)	[Billaut-Mulot (2001)]
Vaccine: *Vector/type:* DNA with DNA boost, DNA with recombinant protein boost *Strain:* LAI *HIV component:* Gag, Tat, Nef *Stimulatory Agents:* IL-18 • DNA vaccinated BALB/c mice primed and boosted with the multiepitopic vaccine with IL-18 showed lymphoproliferative responses 7 weeks post immunization • Strong but non-lasting HIV-specific CTL responses were detected by a Cr-release assay and DNA prime/DNA boost was more effective than DNA prime protein boost • Immunization with either the multiepitopic DNA or with the mixed DNA vaccine induced HIV-1 specific Th1 cytokines (IL-2 and IFN-γ)					

- Co-administration of IL-18 increased T-cell responses but decreased anti-HIV antibody levels

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Tat(83–92) Tat( ) GPKESKKKVE human(B58) [De Groot (2001)]

- The program Epimatrix was used in conjunction with the program Conservatrix to identify conserved regions of HIV that might serve as epitopes
- A subset of the potential epitopes was identified that could bind to the appropriate HLA-allele, and 15 predicted B7 superfamily (HLA B7, B8, and B58) epitopes could stimulate IFNγ production in an ELISPOT assay
- GPKESKKKVE was newly identified as an HLA-B58 epitope in this study

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Tat( ) Tat( ) Vaccine human( ) [Calarota (1999)]

Vaccine: *Vector/type:* DNA *HIV component:* Nef, Rev Tat

- 9/9 HIV-1+ subjects were given one of three DNA vaccinations for nef, rev or tat, and novel proliferative and CTL responses were generated
- The nef DNA immunization induced the highest and most consistent CTLp activity, IFN-γ production, and IL-6 and IgG responses
- Highly active antiretroviral treatment (HAART) did not induce new HIV-specific CTL responses but reduced viral load, while DNA vaccination induced new immune responses but did not reduce viral load – thus this is a potentially complementary and promising combination

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Tat( ) Tat( ) HIV-1 infection human( ) [Froebel (1997)]

- Two HIV-1 infected children with contrasting disease courses were followed longitudinally – one died of AIDS, the other is a long-term non-progressor
- Reactivity against Gag, Pol, Env and Tat proteins was tested by PBMC bulk cultured cells reacting with protein expressed in vaccinia constructs in autologous EBV transformed B cells
- The child who progressed consistently had CTL against Pol and Tat
- The long-term non-progressing child had no detectable CTL, but was heterozygous for a mutation in the CCR5 receptor and for HLA-B49, which has been shown to be associated with slower progression

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Tat( ) Tat( ) HIV-1 infection, Vaccine human( ) [Calarota & Wahren(2001)]

Vaccine: *Vector/type:* DNA *HIV component:* Nef, Rev, Tat *Stimulatory Agents:* CpG motifs

- This review discusses the cellular immune response, and comments on the stimulatory role of CpG motifs and how HIV-1 DNA vaccines can boost the CTL and Th proliferative responses in asymptomatic HIV+ individuals

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Tat( ) Tat( ) Vaccine macaque( ) [Cafaro (2001)]

Vaccine: *Vector/type:* DNA *Strain:* BH-10 *HIV component:* Tat *Stimulatory Agents:* CpG, ISCOM

- Macaques (*Macaca fascicularis*) were immunized with HIV-1 Tat linked to an adenovirus major late promotor in a plasmid with 23 CpG sequences, 12 unmethylated
- The vaccinated animals contained a primary infection challenge with SHIV89.6P, preventing CD4+ T-cell decline in the animals, suggesting Tat may be useful at blocking viral replication at its early stage

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Tat( )	Tat( )	Vaccine	murine(H-2^d)	[Xin (2001)]

Vaccine: *Vector/type:* adeno-associated virus (AAV) *HIV component:* Env, Tat, Rev *Stimulatory Agents:* IL-2

- An AAV vector expressing HIV-1 env, tat, and rev genes (AAV-HIV vector) was used to vaccinate BALB/c mice
- A single injection stimulated and long lasting serum IgG, fecal IgA, and HIV-specific CTL
- Boosting enhanced the humoral response, and IL-2 enhanced T-cell immunity

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